



Drones in Malawi

Drones are increasingly being used to help foster development and humanitarian interventions in Malawi. UNICEF has been leading the use of unmanned aerial systems (UAS, also known as drones) in the country, beginning in 2016, transporting laboratory samples for early infant HIV diagnosis.

Drones help with HIV testing for infants

In 2016, UNICEF conducted a feasibility study on using drones for the transportation of dried blood spots for early-infant diagnosis of HIV. It showed drones were a cost-effective tool for UNICEF's operations. Based on the study results, UNICEF is currently supporting a programme to roll out a diagnostics referral network and supply chain system which will integrate drones alongside current modes of transportation and point-of-care diagnostics. The programme will eventually include delivery of other health commodities, such as vaccines and emergency medicines.

Drone corridor for humanitarian use

In 2017, the Government of Malawi and UNICEF announced the establishment of a humanitarian drone testing corridor. Located at the Kasungu Aerodrome, in central Malawi, it has a 40 km radius covering some 5,000 km² allowing drones to travel up to 400 meters above ground level and beyond visual line of sight. The corridor is designed to test drone technology in three main areas: (i) imagery – generating and analysing aerial images; (ii) connectivity – exploring the possibility for drones to extend telecommunications connectivity across difficult terrain; (iii) transport – delivery of low weight supplies such as medicines. The corridor provides a controlled area to test the use of drones for the benefit of children and marginalized communities. All data generated by the flights is used to inform the Government's plans for the use of drones in the future.

The air corridor is also fostering innovation among young people. In 2017, young people received training in building drones, resulting in one student building a drone that successfully flew 17 kms. Future activities will continue to focus on developing a group of young drone experts and entrepreneurs.

Drones aid disaster preparedness and emergency response

Malawi is often impacted by extreme weather events, including seasonal flooding. The limited network of roads and short supply of light aircraft impede search-and-rescue efforts and humanitarian assessment of the devastation. UNICEF is working with the Government, other UN agencies and non-governmental organizations to use drones for risk-informed programming and emergency response. Two companies have been contracted to map flood-prone areas and provide data to create "disaster profiles." The risk data is analysed and results shared with stakeholders for decision-making during disaster response. UNICEF has also supported the Government's effort to integrate drones into the national response contingency plan, including supporting a simulation exercise to develop coordination mechanisms.

See stories about the drones here:

www.bbc.com/news/world-africa-35809096

www.bbc.com/news/world-africa-35810153

See a story on the flights here:

<https://www.reuters.com/article/us-malawi-aid-drones/malawi-unicef-launch-africas-first-humanitarian-drone-testing-corridor-idUSKBN19K1Q3>

See information on the use of drones for flood response here:

https://medium.com/@unicef_malawi/testing-the-use-of-drones-for-emergency-flood-response-f442244bec52



UNICEF drones specialist poses with students from Lilongwe University of Natural Resources and Agriculture.

Photo Credit: ©UNICEF Malawi/2017/Kalemba

Low-cost drone built by students delivers medicine over 19 km distance

In November 2017, an aviation milestone was achieved in Malawi when a team from America's Virginia Tech supervised a fully autonomous, 19 km simulated drug delivery flight in a drone designed and built by Malawian students.

The aircraft, called ECO Malawi, was designed at Virginia Tech Unmanned Systems Lab to be fabricated and operated locally in Malawi for remote medicine delivery and other purposes.

The flight test occurred at the drone testing corridor in Kasungu to help understand possible drone applications in medical supply delivery, vaccines and sample delivery and remote sensing. Virginia Tech facilitated a two-day workshop in which 13 local students were coached through the construction of five aircraft. They were made with a foam core, and 3D printed parts, to make it easier to fabricate locally and keep costs down.

On November 9, an endurance test for the newly built drones took place at Gogode Health Centre. After one aborted test flight, the second try proved successful as the fully autonomous flight made it to Kasungu airport. The flight took 16 minutes and covered a distance of 19 km.

Kevin Kochersberger of Virginia Tech said: **"It is a testimony to the clever design of the aircraft that 13 participants who had limited or no experience in aircraft construction were able to successfully build the aircraft."**

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